Arabian Journal of Business and Management Review

Daghsni et al., Arabian J Bus Manag Review 2016, 6:5

Research Article Open Access

Earnings Management and Board Characteristics: Evidence from French Listed Firms

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Abstract

The purpose of this paper is to test the effect of the board characteristics including; its size, independence, the CEO duality and its activity on the earnings management in companies listed on the SBF 250. We use discretionary accruals (DA) as a proxy for the earnings management. To calculate DA, we use two models which are the modified Jones model (and performance-matched discretionary accruals estimated from the modified Jones model. Based on a sample of 70 French listed companies over the period of 4 years from 2008 to 2012, the study finds that the earnings management is negatively associated with the board size. This suggests that large boards are more effective in monitoring a CEO's action. The CEO duality is found to have a positive relationship with the earnings management suggesting that, by combining the role of the CEO and that of the chairman of the board helps increase the earnings management because the CEO may reduce the effectiveness of the board and create a conflict between the management and the board that may reduce the earnings management. Moreover, the board activity is found to have a positive relation with the earnings management suggesting that a board meeting more often helps to increase the earnings management. The present study finds no effect of the board independence on the earnings management. This result is in contradiction with previous studies that have found a significant negative relationship between these two variables. Overall, from the result of this study, we conclude that the earnings management takes place in French listed companies.

Keywords: Earning management; Corporate governance; Board of directors; Absolute value of discretionary accruals

Introduction

Financial accounting is used to reflect economic reality of any company. Managers of these companies are considered primarily responsible for the preparation of financial reporting. Earning is an interesting single item in financial reporting. It took a particular interest in management science research. So, it is one of the major concerns of company partners. Given the significance of earnings, managers are interested in the way they are reported. For this reason they have to learn how to manage their earnings [1-3]. Thus, they will be able to enhance both the form and the content of financial reporting by adjusting the accounting income in order to maximize its utility. However, financial accounting became doubtful after a series of firm bankruptcies and frauds (Enron, Tyco, and WorldCom). These failures also caused on the one hand the lack of confidence in the credibility of published financial statements and, on the other hand, a loss of investor's confidence in the management of the company. Hence, this doubt takes the form of a recurring issue: Can we trust the financial reporting of the Company? In this case, earnings management has recently attracted serious attention from academic researchers, regulators and financial press. For example, according to the Security Exchange Commissions (SEC), earnings management decreased the quality of financial reporting and could be undesirable to shareholders. When the interests of the shareholders and mangers diverge, the mangers can manipulate earnings for their own benefit In fact, enhancing the reliability and integrity of financial reporting is a capital research topic. Therefore, the control and the preparation of financial reporting have become more essential. In order to guarantee the quality of financial reporting, a corporate governance process is needed as a major device. This has led regulators to realize the importance of corporate governance. This controversial term defined as the set of processes conducting and controlling the company has become a subject of an active debate. One of its important determinants that attracted a lot of attention is the board of directors which is viewed as the "apex body" of corporate governance [4]. It is responsible for monitoring the managers on behalf of the shareholders and overseeing financial reporting process by company law. Therefore, the board of directors should play a role in retaining the earnings management.

Previous studies are trying to figure out the kind of relationship between the board characteristics and the earnings management in different proportions. For example, in the USA, the effect of various board characteristics on the earnings management was investigated. They indicated that a firm with a majority of board independence and a smaller size of the board has less earnings management. Moreover, the small-sized board is more likely to reduce the earnings management was founded. Dechow et al. [5] compared the proportion of independent directors between firms that do violate the Generally Accepted Accounting Principle (GAAP) to overstate their earnings and matched businesses that do not. They found that GAAP violation is linked to a lower presence of independent board members. Klein [1] discovered that the proportion of independent directors reduces the earnings management and therefore, it is associated with a higher financial discourse quality. In the UK, Peasnell et al. [6] studied the impact of the presence of the independent directors on the earnings management for a sample of 270 companies. They found that the

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Received April 07, 2016; **Accepted** June 06, 2016; **Published** June 13, 2016

Citation: Daghsni O, Zouhayer M, Mbarek KBH (2016) Earnings Management and Board Characteristics: Evidence from French Listed Firms. Arabian J Bus Manag Review 6: 249.

more independent the directors are, the less likely the earnings management to be positive. In Australia, Davidson et al. [7] assumed that the practice of earnings management is systematically related to internal corporate governance mechanisms in the company including the board of directors. In Asia, Firth et al. [8] suggested that the board independence improves the earnings management. The impact of corporate governance on the earnings management was studied. They found that firms with good corporate governance have less earnings management. In Malaysia, Badbury et al. [9] found that a smaller size of the board of directors reduces the level of the earnings management and increases the information content of the accounting income. In American the investigation was done on the relationship between the internal mechanism of corporate governance and the earnings management over the 2006/2009 period. They found that the earnings management is associated with the board characteristics. In China, Gulzar [10] examined the effect of the board characteristics on the earnings management over the 2002-2006 period. The study of Gulzar [10] found that the earnings management is associated with the CEO duality and board activity.

In France, Jeanjean [11] investigated the role of independent directors to monitor the earnings management. He showed that the percentage of independent board members constraints the manager to engage in opportunistic income increasing decisions. In fact, in France, the research on the impact of the board characteristics on the earnings management is limited. This study seeks to fill this research gap. Academic literature raises a fundamental empirical research question: do the board characteristics affect the earnings management? This study focuses on the relationship between the board characteristics and the earnings management. The main goal of our research is to study the effect of the board characteristics on the earnings management by French listed companies.

The remainder of this paper is organized as follows: The first section reviews the literature; it reviews prior studies about the impact of the board characteristics the on earnings management that has leaded to our hypotheses. The second section describes the sample and research methodology. The last section summarizes and discusses the results.

A Summary of Theoretical Literature

Earnings management

Several definitions of earnings management have been proposed. We mention some definitions, but beforehand, it is necessary to reveal the confusion between fraud and earnings management: fraud is defined as "one or more intentional acts designed to deceive other persons and cause them financial loss" (the National Association of Certified Fraud Examiners). Therefore, fraud is considered an illegal act committed by a person belonging to a company. In contrast, earnings management is a legal act that derives its practical flexibility from accounting standards which can produce the best information in terms of quality and quantity. Earnings management is the selection of accounting methods carried out by the manager, and indicates the ability of the manager to improve the situation of company while respecting the rules of accounting.

There are many definitions of the earnings management:

- Shipper [12] defined the earnings management as «a purposeful intervention in the external financial reporting process, with the intention of obtaining some private gains (as opposed to merely facilitating the neutral operation of the process)".

- Degeorge et al. [13] indicated that the earnings management is «the strategic exercise of managerial discretion in influencing the earning figure reported to external audiences".

- Dechow et al. [14] defined the earnings management as «the process of taking deliberate steps within the constraints of generally accepted accounting principles to bring about a desired level of reported earnings « quoted in Schipper (1989,p. 92).

- Healy et al. [15] indicated that the "earnings management occurs when the managers use judgment in financial reporting, and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers".

- Godard et al. [16] sustained that the "managers with good investment opportunities manage the results to indicate their future growth».

- According to Beneish [17], there are two perspectives on the earnings management. The first one is the information perspective which states that managerial discretion is a means for the managers to reveal to investors their private expectations about the firm's future cash flows [16], and the second one is the opportunistic perspective which states that the managers seek to mislead the investors [15].

We specify the earnings management as «the choice of accounting policies, or real actions that affect earnings so as to achieve some specific managers' objective". From a technical point of view, companies have for a long time depended on the earnings management for which the literature has identified several strategies. These strategies covered a ground wider than the definition of the earnings management. There are three types: income smoothing to minimize the variance of results, clearing accounts to cover the losses and leave them on a sound base when a new CEO is appointed and creative accounting is implemented to modify the presentation of the financial statements in order to optimize, but sometimes in order to deteriorate.

Different accounting and financial theories can justify the accounting choices of managers. We consider respectively the contribution of Positive Accounting theory to explain accounting practices in order to clarify the genesis of the financial statements, the agency theory which is a main tool for the study of contractual relationship between two or more persons. According to Jensen et al. [18], this agency theory is defined as "a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some services on their behalf which involve delegating some decision making authority to the agent". However, there is a difference between ownership that belongs to the shareholders and management that is entrusted to the managers. The purpose of this theory is to guide the choices in an organization and coordinate the control applied to the earnings management. This difference leads to an interest divergence among shareholders and managers. The regulation theory, which is also known as "the theory of capture or positive of economics regulations» describes how interest groups and political actors use the means of regulations to guide the rules according to their directions. Therefore, the regulator is subordinated to the interests of organized producers. This regulation theory is now included in the theory of public choice, efficient market theory which requires that the prices reflect all new information. In fact, if the market is efficient, the investors integrate in their decisions the fact that different accounting changes are made to manipulate, either upward or downward, the results to satisfy personal interests and signal theory which to justify the accounting policies.

Due to the extended of the earnings management practice, the search for mechanisms that can limit the earnings management has become more essential. Among those mechanisms, we mention the board of directors' major role in the operations of company. Vienot's report has assigned four missions to the board: "to define the business strategy, appoint the corporate managers, control management, and ensure the quality of information provided to shareholders, and the markets through accounts or occasionally very important operations». According to Healy [19], "the role of the board is multiple: it protects the assets of the company for the interest of minority, ensures short and long-term growth and profits, employs planning and resources in the long-term and evaluates the managers' decisions ». In addition, it should be noted that the board has two modes of action for monitoring the managers. According to Charreaux [20], the aligning of the manager and shareholders' interests is made according to the following two main vectors:

- Remuneration policy to encourage managers to work in the best interests of the shareholders
- CEO revocation to punish unruly managers

Many variables that have received attention in previous studies of corporate governance may influence the effectiveness of the Board. These variables will also be examined in this study including the board size and independence, the CEO duality and the board activity.

Board size

Literature relating to corporate governance is largely interested in the study of the influence of the board size on the effectiveness of the board of directors. According to Beasley et al. [21] "the size of the board is an important factor for the effectiveness of the board. Most studies examined the link between board size and earnings management. In this context, according to Park et al. "the size of board is considered an important element which affects earnings management». There is three different views [22].

First, previous studies argued that a large board strengthens its ability to control. Thus, the more the board is important; the more the control of directors is reinforced. In this context, Xie et al. [2], Davidson et al. [7] and Breton et al. [23] tested the relationship between the board size and earnings management using a sample of U.S. companies. The authors predicted that a large number of directors have more opportunities to have independent directors with sufficient experience, which helps to mitigate the earnings management. Defond et al. [24] showed that the smaller the size of the board is, the higher the chances of manipulation of the manager increase. Cheng et al. [25] found a negative relation between earnings management and board size in the USA. Hermalin et al. [26] showed that a board with a large size is characterized by a diversity of views on the structure and better monitoring. Fama et al. [4] indicated that if the size of the board is large, it is more efficient for the board members to communicate effectively with one another.

The board of directors shall be neither too big nor too small. They suggested that the optimal size is between five and nine members. Jensen [4] announced that the optimum size is between seven and eight members.

Finally, the majority of the researches indicated that a small-sized board is more effective in controlling than large-sized one. In this context, Klein [2] and Peasnell et al. [6] showed that small-sized boards are generally more effective and lead to the improvement of the earnings management. These authors stated that there is a significant negative relationship between the board size and the earnings management. Pretty et al. [27] investigated the impact on board characteristics on earnings management using a sample of 12 Indian. They found a significant positive relation between the earnings management and the board size indicating that large boards are more likely to increase the level of the earnings management. Gulzar [10] examined the efficiency of the board characteristics in reducing the earnings management from Chinese listed firms. His result indicated that a smaller board is associated with a low level of earnings management. Beasley [21] studied the link between fraud and the board size. His results indicated that fraud is an increasing function of the board. Chi-Keung [28] argued that a small-sized board exercises greater than a small-sized one.

Some authors found no relation between the board size and the earnings management [3].

Divergent results of these studies do not lead us to predict the direction of the relationship between the board size and the earnings management. Thus, we propose to study the following hypothesis.

Hypothesis 1: *Board size positively affects* the *earnings management*

The board independence

The board independence is considered the most important factor determining the board effectiveness in reducing the discretion of the manager and his opportunism. It requires a higher fraction of outside directors rather than inside ones and the board members who have no operational responsibilities within the firm.

In the French context, Vienot report encouraged the listed companies to include independent directors on their board. Indeed, Vienot I's report suggested that the independent director can be defined as "A person who has no direct or indirect interest relationship with the company or its affiliates. He can objectively participate with the board". Moreover, Vienot II's report suggested that "a director is independent of the corporation's management when he or she has no relationship of any kind with the company".

Previous empirical studies have demonstrated the association between the proportion of independent directors and board the effectiveness in monitoring the earnings management. For example, Beasley [21] showed that fraudulent firms have significantly fewer independent directors than non-fraudulent ones. In the same optical, Dechow et al. [5] compared the percentage of independent directors between firms that do violate GAAP to overstate their earnings and matched businesses that do not. They showed that violation of GAAP is associated with a lower presence of board members' independence. These authors Beasley M [21], Dechow et al. [5] finally found a negative relationship between the percentage of the independent boards and the earnings management. Similarly, on U.S. companies, Klein [1] showed the existence of a negative relationship between the independent board and the earnings management. On French companies, Jeanjean [11] identified the same relationship as a significant decrease in the earnings management when there are independent directors. These are between 30% and 40%. On British companies, Peasnell et al. [6] found that upward managing earnings is negatively related to the board independence, On the other hand, for Mexico, Donnelly et al. [29] indicated that when the board independence has a limited participation in the board, the earnings management has an increasing level. For Xie et al. [2], the earnings management appears less clear when the proportion of independent directors is more important than in boards of directors composed essentially of inside directors.

These authors interpreted their results by the fact that the presence of independent directors within the board represents an obstacle for the earnings management.

On Thai listed companies, Supawadee et al. [3] found that there is a significant positive relation between the earnings management and board independence, which indicates that a large number of independent boards is more likely to increase the level of the earnings management.

On the other hand, previous studies found no relation between the board independence and the earnings management [10].

These studies lead us to expect that the earnings management is negatively associated with the presence of independent directors. Therefore, we propose to study this hypothesis:

Hypothesis 2: *The board independence negatively affects* the *earnings management.*

CEO duality

Another important characteristic of the board is the CEO duality. Besides, the composition of outside directors on the board, the separation of roles of the Chairman of the board and the CEO can also affect the independence of the board. Thus, this characteristic affects the board effectiveness. The role of the Chairman is pivotal to securing good corporate governance. For Jensen the function of the Chairman of the board is to run the board meetings, oversee the process of hiring, firing, evaluating and compensating the CEO. Therefore, when the Chairman of the board and the CEO is the same person, there is a very real danger that the firm is controlled by one man, and the board is not independent from the management. Duality means to combine the functions of the CEO and the Chairman of the Board of Directors which assigns a dual mission to the same person: management and control. In France, the issue of combining the functions of the chairman and the CEO was at the heart of the news in the recent years, with the publication of Viénot. Indeed; the Cadbury report emphasized the separation between these two functions. Similarly, the Viénot report gave the opportunity for companies to choose between separation and combination of functions of the chairman and the CEO with a specification of the functions to be performed in both cases.

The agency theory stated that combining the functions of the CEO and the Chairman of the Board is considered an obstacle to the effectiveness of the control exercised by the Board of Directors. Therefore, it recommends the separation between these two functions. Indeed, Jensen et al. [18] and Jensen pointed out that separating management from control decisions reduces the agency costs and the earnings management. Gulzar [10] found a significant positive association between the CEO duality and the earnings management. His result indicated that separating the role of CEO from the chairman's helps reduce the earnings management.

Similarly, the Cadbury report (1992) insisted on the separation between these two functions. Similarly, Vienot**'s** report gave the opportunity to companies to choose between separating and combining the functions of the chairman and that of the CEO with a specification of the functions to be performed in both cases.

Previous studies have used the CEO duality as a determinant of the earnings management. They have demonstrated that the combination may affect the board effectiveness in monitoring management. For example, Dechow et al. [5] found that firms are more likely to be subject to accounting enforcement actions by the SEC for alleged violations of GAAP if they have a CEO serving at the same time as the Chair of the board. Similarly, Chtourou et al. [30] showed that the existence of a negative relationship between the earnings management and the separation between both functions. Peasnell et al. [6] investigated the impact of the separation between the functions of the CEO and that of the Chairman of the board on the earnings management. They found a significant negative association between these two variables.

On the other hand, previous studies found no relation between the CEO's duality and the earnings management [3]. Therefore, we propose to study the following hypothesis:

Hypothesis 3: *The existence of CEO*'s *duality increases* the *earnings management.*

Board activity

As for the other characteristics, the board activity, which is measured by the board meeting frequency, can be considered as an important factor determining the board effectiveness. It is generally known that a more active board is better for the shareholders' interests because directors have to spend more time and energy on the company's affairs. Recently, many financial and academic publications have criticized that directors have too little time to attend meetings regularly, which will limit their ability to monitor the management activity well. Conger et al. [31] suggested that the board meeting time is an important resource for the improvement of board effectiveness.

According to Vienot, the boards must meet between four and six meetings a year, which is sufficient to monitor the progress of the group, and make key decisions. Godard et al. [16] showed that the number of the board meetings has increased significantly.

Indeed, there are explanations both for and against a positive relationship between the board activity and the earnings management. Literature related to the link between the board activity and the earnings management leads to contradictory conclusions.

Previous studies evidenced that a board meeting more often is expected to help monitor the board activity in order to maintain the earnings management more effective [16]. Indeed, Vafeas [32] suggested that the frequent board meetings can help to make up the limited director's interaction time. In the French context, Godard et al. [16] noted a significant increase in the number of the board meetings helps a detailed control of the managers. As a consequence, we can say that the board meetings are inversely proportional to the retained earnings. The board with a lack of board meetings cannot discuss and focus on the issues of maintaining the earnings management.

Gulzar [10] found a significant positive relationship between the board activity and the earnings management. His result indicated that the board meetings more often help to increase the earnings management.

On the other hand, previous studies found no relation between and the board activity and the earnings management [3]. Therefore, in this context, we will set the following hypothesis:

Hypothesis 4: *The number of Board meetings negatively affects the earnings management*

Research Methodology

Sample and research methodology

Data and sample selection: Our sample includes French listed

companies from the SBF 250 index during the 2008/2012 period. We have excluded financial institutions (banks, insurance and finance companies) due to the specificity of their accounting rule. The final sample used in this study includes 70 companies from three sectors from which we have obtained 350 observations. The following Table 1 shows the distribution of our sample by sector.

The data in this study are collected manually from various sources. We relied on press releas Echoes and Tribune to collect financial and accounting information: We used the annual reports and the consolidated financial statements of cash flows available on the website www.tribune.fr and www.echos.fr. For some missing financial information, we used the annual reports available on the AMF website and institutional sites of companies. All the data related to corporate governance variables are also collected from the annual reports of the sampled firms available on the AMF website[1].

Application and Results

Model specification

This study investigates the relationship between the board characteristics and the earnings management by using the following regression model:

$$\mathbf{AVDA_{it}} = \beta_0 + \beta_1 LNTAC_{it} + \beta_2 ANDEX_{it} + \beta_3 DUAL_{it} + \beta_4 ADMRE_{it} + \beta_5 LNAT_{it} + \beta_6 LEV_{it} + \beta_7 HIGHTEC_{it} + \beta_8 ROI_{it+} e_{it}$$

These are proxies of the absolute values of the discretionary accruals, as estimated by the cross-sectional modified Jones model and performance matched discretionary accrual model respectively. The dependent and independent variables of the model are measured as follows (Table 2):

This study includes four variables of interest about the board characteristics and the number of firm's specific control variables, such as its size, its financial leverage, its high technology sector and its performance.

Given that the variable of the board independence is measured using two proxies which are:

Sector	Number of companies
High-technology Sector	26
Industrial sector	19
Commercial sector	25
Total	70

Source: Our calculations

Table 1: Distribution of sample by sector.

- The proportion of independent directors on Boards.
- A dummy variable equal to 1 if the Board has a majority of independent directors, and 0 otherwise.

Hence, we used two models according to the variable of independence of the board (ANDEX):

- Model 1 estimates the variable of the board independence which is measured by the proportion of independent directors on Boards. We note ANDEX1.
- Model 2 estimates the variable of the board independence which is measured by a dummy variable equal to 1 if the Board has a majority of Independent directors, and 0 otherwise. We note ANDEX2.

Model 1: $AVDA_{it} = \beta_0 + \beta_1 LNTAC_{it} + \beta_2 ANDEX1_{it} + \beta_3 DUAL_{it} + \beta_4 ADMRE_{it} + \beta_5 LNAT_{it} + \beta_6 LEV_{it} + \beta_7 HIGHTEC_{it} + \beta_8 ROI_{it} + eit$

Model 2: $AVDA_{it} = \beta_0 + \beta_1 LNTAC_{it} + \beta_2 ANDEX2_{it} + \beta_3 DUAL_{it} + \beta_4 ADMRE_{it} + \beta_5 LNAT_{it} + \beta_6 LEV_{it} + \beta_7 HIGHTEC\ it + \beta_8 ROI_{it} + eit$

After that, we have tested these two models to check which model is appropriate: model 1 or model 2. More precisely, we have adopted the coefficient criterion of R^2determination.We have chosen the model which presents the high value of R^2.

Estimating the earnings management

To estimate discretionary accrual (DA) as a proxy for the earnings management, we used two models which are the modified Jones model (Dechow et al. [5]) and the performance-matched discretionary accrual estimated model from the modified Jones model.

Modified-Jones model:

We estimate DA with modified Jones model using the following equation:

$$\mathbf{DA_{it}} = TAit/Ait\text{-}1 - [â1\ (1/Ait\text{-}1) + â2\ (\Delta REVit - \Delta RECit) / Ait\text{-}1 + â3\ PPEit / Ait\text{-}1]$$

We estimate this model on a sample of 350 observations during the period 2008-2012 using ordinary least squares (OLS). The regressions results showed that modified-Jones model is significant (F = 9.141977, P-Value = 0.000008) with an adjusted R^2 6.54%, which means that the combinations of the independent variables explain around 7.34% of variation of dependent variables.

Variables	Definition	Description
Dependent variable		
DA	Earnings management	The value of discretionary accruals for company I in year t
Explanatory variables		
LNTAC	Board size	The natural logarithm of total board members
ANDEX	Board independent	- the proportion of independent directors on Boards - a dummy variable equal to 1 if the Board has a majority of independent directors and 0 otherwise
DUAL	CEO Duality	a dummy variable equal to 1 if the roles of chairman and CEO are combined and 0 otherwise
ADMRE	board activity	Total number of board meetings
Control variables		
LNAT	Firm size	Log of total assets
LEV	Financial leverage	Total debt to total assets
HIGHTEC	High-technology Sector	A dummy variable equal to 1 if the Company belongs to High-technology Sector and 0 otherwise
ROI	Firm performance	Net profit to equity

Table 2: Summary of variables definitions.

[1]www.amf-France.org

Performance-matched discretionary accruals model:

We estimate DA performance-matched discretionary accrual model using the following equation:

$\mathbf{DA_{it}}$ = TAit/Ait-1– [â1 (1/Ait-1) + â2 (ΔREVit – ΔRECit) / Ait-1 + â3 PPEit / Ait-1+ â4 ROAit-1]

We also estimate this model on a sample of 350 observations during the period 2008-2012 using ordinary least squares (OLS). The regression results showed that performance matched discretionary accrual model is significant (F = 9.885610, P-Value = 0.000000) with an adjusted R^2 (9.24%), which means that the combinations of the independent variables explain around 10.28% of variation of the dependent variables.

Thus, according to the criterion of coefficient of determination R^2, we choose performance matched discretionary accrual model since R^2 (9.24%) of this model is higher than R^2 (7.34%) of modified-Jones model.

In this study, we measure the discretionary accruals in absolute value of discretionary accruals (AVDA) according to previous study [1,6]. This estimate will be made according to performance matched discretionary accrual model taking into account the independent variables (explanatory variables and control variables).

Estimating regression model

To test our model, we examine, in the first stage, the characteristics of the variables by using descriptive analysis and in the next stage by using the Correlation analysis (Table 3).

Descriptive analysis: Table 4 provides descriptive analyses of all the variables. This table shows that the magnitude of absolute value of discretionary accruals in the sample has a small mean 0,024418 with a standard deviation of 0,036641 and the range is from a minimum of 0,0000053 to a maximum of 0,193900. This shows that the French listed companies make the earnings management on their operation. The board size is on average 2.09 members'. The minimum and maximum values are respectively equal to 1.09 and 2.94. For the board independence which is calculated by two measures: (1) through the proportion of independent directors on boards which is equal to 38.28%, and (2) by a dummy variable equal to 1 if the Board has a majority of independent directors and 0 otherwise which is equal to 39.76%. These results are comparable to those found in the British context that were about 42% and lower than those found in the U.S. contests [1,2] which was in the order of 65%. The dual variable is equal to 0.51014493, which means that the majority of French companies do not separate the role between CEO and chairman of the board. Finally, the average board meeting is equal to 7.

With regard to the control variables, the firm's size, financial leverage, firm's performance and industry are respectively equal to 21.7790857, 0.356578, 10.9658 and 0.371429.

Correlation analysis: The major problem that could bias the results of the models is the collinearity between the variables. For this reason, before running the regression, it is essential to study the correlations between the explanatory variables and test the multicolinearity problem. We have considered the Pearson's correlations. Tables 5 and 6 contain the Pearson's correlations between the explanatory variables respectively of model 1 and model 2, respectively. Argument was done that a serious problem of multicolinearity exists when correlations between the independent variables exceed 0.80. The result of Tables 5 and 6 indicate that the values of the Pearson's correlation coefficients are not high.

Moreover, on the basis of the findings in Tables 5 and 6, it is clear that there is a positive correlation between CEO duality, board activity and earnings mana gement as shown by a correlation value respectively of 0.084348, 0.113639. This shows that the predictor variables of the board activity and CEO duality positively influence the earnings

Variable		Minimum	Maximum	Mean	ST-DEV
AVDA		0,0000053	0,193900	0,024418	0,036641
LNTAC		1,09	2,94	2,0916	0,48382935
ANDEX	**ANDEX1**	0	1	0,38285714	0,48677979
	ANDEX2	0	1	0.397612	0.232782
DUAL		0	9	0,51014493	0,67817833
ADMRE		2	21	7,03142857	2,75382219
LNAT		18,61	23,02	21,7790857	0,67120238
Lev		0.056890	0.879200	0.356578	0.162787
Hightec		0	1	0.371429	0.483878
ROI		-474,31	1442,54	10,9658	83,5759968

Source: our calculations

Table 3: Descriptive analysis of all the variables.

	AVDA	LNTAC	ANDEX1	DUAL	ADMRE	LNAT	LEV	HIGHTEC	ROI
AVDA	1	-0.152431	-0.033466	0.084348	0.113639	0.122370	0.042083	0.140732	0.181096
LNTAC		1	0.206769	-0.094100	-0.031737	0.106057	0.175143	-0.142438	0.053557
ANDEX1			1	-0.072991	-0.047477	0.0940034	0.100522	-0.009384	0.067983
DUAL				1	-0.008514	0.098832	-0.019149	0.031784	-0.013509
ADMRE					1	0.0101553	0.014068	0.120233	0.097924
LNAT						1	0.192825	-0.003715	0.045692
LEV							1	-0.302414	0.030253
HIGHTEC								1	-0.034816
ROI									1

Source: our calculations

Table 4: Pearson's correlations-Model 1.

	AVDA	LNTAC	ANDEX1	DUAL	ADMRE	LNAT	LEV	HIGHTEC	ROI
AVDA	1	-0.152431	-0.046260	0.084348	0.113639	0.122370	0.042083	0.140732	0.181096
LNTAC		1	0.206769	-0.094100	-0.031737	0.106057	0.175143	-0.142438	0.053557
ANDEX1			1	-0.120807	-0.088404	0.114717	0.039869	-0.085819	0.104823
DUAL				1	-0.008514	0.098832	-0.019149	0.031784	-0.013509
ADMRE					1	0.0101553	0.014068	0.120233	0.097924
LNAT						1	0.192825	-0.003715	0.045692
LEV							1	-0.302414	0.030253
HIGHTEC								1	-0.034816
ROI									1

Source: our calculations

Table 5: Pearso'sn correlations-Model 2.

Variables	Regression equation	VIF-Model1	VIF-Model2
LNTAC	$LNTAC=\alpha_0 + \alpha_1 ANDEX + \alpha_2 DUAL + \alpha_3 ADMRE + \alpha_4 LNAT + \alpha_5 LEV + \alpha_5 HIGHTEC + \alpha_7 ROI + \varepsilon$	**1.097**	1.166
ANDEX	$ANDEX=\alpha_0 + \alpha_1 LNTAC + \alpha_2 DUAL + \alpha_3 ADMRE + \alpha_4 LNAT + \alpha_5 LEV + \alpha_6 HIGHTEC \alpha_7 ROI + \varepsilon$	1.066	1.164
DUAL	$DUAL=\alpha_0 + \alpha_1 ANDEX + \alpha_2 LNTAC + \alpha_3 ADMRE + \alpha_4 LNAT + \alpha_5 LEV + \alpha_6 HIGHTEC + \alpha_7 ROI + \varepsilon$	1.027	1.035
ADMRE	$ADMRE=\alpha_0 + \alpha_1 ANDEX + \alpha_2 DUAL + \alpha_3 LNTAC + \alpha_4 LNAT + \alpha_5 LEV + \alpha_6 HIGHTEC + \alpha_7 ROI + \varepsilon$	1.042	1.048
LNAT	$LNAT=\alpha_0 + \alpha_1 ANDEX + \alpha_2 DUAL + \alpha_3 ADMRE + \alpha_4 LNTAC + \alpha_5 LEV + \alpha_6 HIGHTEC + \alpha_7 ROI + \varepsilon$	1.079	1.087
LEV	$LEV=\alpha_0 + \alpha_1 ANDEX + \alpha_2 DUAL + \alpha_3 ADMRE + \alpha_4 LNAT + \alpha_5 LNTAC + \alpha_6 HIGHTEC + \alpha_7 ROI + \varepsilon$	1.171	1.169
HIGHTEC	$HIGHTEC =\alpha_0 + \alpha_1 ANDEX + \alpha_2 DUAL + \alpha_3 ADMRE + \alpha_4 LNAT + \alpha_5 LEV + \alpha_6 LNTAC++\alpha_7 ROI + \varepsilon$	1.136	1.135
ROI	$ROI=\alpha_0 + \alpha_1 ANDEX + \alpha_2 DUAL + \alpha_3 ADMRE + \alpha_4 LNAT + \alpha_5 LEV + \alpha_6 LNTAC+ \alpha_7 HIGHTEC + \varepsilon$	**1.018**	**1.025**

Table 6: The VIF-test.

management. Which in turn is negatively correlated with the board size (-0.15243) and independence by a correlation value respectively of -0.033466 and -0.046260.

Furthermore, to check the absence of multicolinearity problem, we calculate the VIF (factor variance inflation). Wooldridge (2000) shows that the variance of the estimated coefficient can be written as follows:

$\mathbf{VIF\ (\beta_i)} = 1/\ (1-R^2_i)$,

Where:

$\mathbf{R^2_i}$ = the coefficient of determination

If this value is lower than 3, we say that there is no multicolinearity problem and the estimated results are good.

Table 7 provides the VIF-test of model 1 and model 2. This table indicates that the value of VIF ranges from 1.018 to 1.171 below the critical value of 3. Thus, the correlations between the independent variables do not seem to be at the origin of the multicolinearity problems.

Regression analysis: After descriptively analyzing the variables, it is necessary to apply the regression analysis to identify the relationship between the dependent variable "absolute value of discretionary accruals" and the explanatory and control variables .We use linear regression model using Panel data to estimate our models.

To examine the effect of the board characteristics on the earnings management, we need to determine which model is the most suitable in our data: the fixed effects based on group estimator or random effects based on generalized least square (GLS).

In the first stage, we estimate our models by using the fixed effect. If the result shows that the probability of acceptance of the null hypothesis of Fisher's test of our model is below 5%. We reject the null hypothesis H0 that confirms the existence of an individual effect. In this case, we turn to establish the random effect. After that, we will apply the Hausman test to check which model is appropriate: the fixed effect model or the random effect model. The Hausman test determines whether the differences between the fixed effect model and the random

Variables	Coefficient	Std Error	Student test	Probability
C	0.2744	-0.075058	0.068558	-1.094802
LNTAC	0.0919	-0.010451	0.006183	-0.690206*
ANDEX1	0.1612	-0.006764	0.004817	-1.404162
Dual	0.0717	0.005290	0.002928	1.80662*
ADMRE	0.0843	0.001365	0.000789	1.731303*
LNAT	0.1515	0.004505	0.003134	1.437404
LEV	0.1325	0.0243313	0.016122	1.508075
HIGHTEC	0.1077	0.010771	0.006678	1.612987
ROI	0.0000	7.91E-05	1.89 E-05	4.189309***

***Significant at 1% level

*Significant at 10% level

Table 7: Discretionary Accruals on the Board characteristic variables and control variables, random effect estimations (GLS)-Model 1.

effect model» are significant. In this step, we test the probability of Chi-square. If this probability is higher than 5%, the random effects model is the most suitable in our data. Or, the probability of Chi-square is below 5%; the fixed effects model is the most suitable in our data.

The result shows that the probability of acceptance of the null hypothesis of Fisher's test of model 1 and model 2 is respectively 0.000006 and 0.000007 < 5%. Thus, we reject the null hypothesis H0 that confirms the existence of an individual effect. In this case, we turn to establish the random effect. Then, we apply the Hausman test to check which model is appropriate: the fixed effect model or the random effect model. The result of this test indicates that the probability of Chi-square for Model 1 and model 2 are equal to 0.7291(72.91%) and 0.7524 (75.24%) respectively, which are high to 0.05(5%). This result is due the fact that the random model is appropriate in the two models, assuming that all the observations were randomly selected. This result means that the random effect is added to the consistency of the two models. Hence, the random effect model based on generalized least square (GLS) is the most suitable suitable in our data.

Tables 8, 9 and 10 show the results obtained from the linear regression of the panel data based on the generalized least square (GLS) of the two models which identify the relationship between the

Variables	Coefficient	Std Error	Student test	Probability
C	-0.074305	0.068760	-1.080651	0.2806
LNTAC	-0.010223	0.006308	-1.620762	0.1060
ANDEX	-0.010129	0.010383	-0.975499	0.3300
Dual	-0.005384	0.002933	-1.835668*	0.0673
ADMRE	0.001415	0.000788	1.795676*	0.0734
LNAT	0.004541	0.003152	1.440843	0.1505
LEV	0.022198	0.016120	1.377093	0.1694
HIGHTEC	0.010195	0.006675	1.527220	0.1276
ROI	7.89E-05	1.89 E-05	4.163621***	0.0000

*Significant at 10% level, *** Significant at 1% level

Table 8: Discretionary Accruals on the Board characteristic variables and control variables, random effects estimations (GLS)-Model 2.

Model	Number of observation	R Square	Adjusted R Square	F-statistic	P-value
Model 1	350	0.102140	0.081076	4.848977	0.000011
Model 2	350	0.099452	0.078325	4.707281	0.000017

Source: our calculations

Table 9: Model summary.

Variables	Expected	Sign obtained	Hypothesis
LNTAC	+	-*	Rejected
ANDEX	-	-	Rejected
DUAL	+	+*	Accepted
ADMRE	-	+*	Rejected

Table 10: Synthesis of the results obtained.

dependent variable, the "absolute value of discretionary accruals", the explanatory and the control variables.

From the finding of Tables 8 and 9, the conclusion of model 1 are the same as with model 2. In fact, we find that the board independence has a negative relationship with the discretionary accruals but we do not find any statistically significant relationship between these two variables. In this case, we adopt the criterion of coefficient of determination R^2. Actually, we choose the model which presents the highest value of R^2 from Table 10, the coefficient of determination R^2 of model 1 (10.21%) is higher than R^2 of model 2 (9.94%). Hence, we choose model 1 that aggregates the earnings management and explains 10.21% of the board size, board independence, CEO duality and board activity. Besides, in Table 10, the significance value of F statistics is 0.000011 indicating the predictor variable (aggregate earnings management) explains a variation in the board size, board independence, CEO duality and board activity, and that the overall model is significant.

Discussion of the Finding

Our study has analyzed the effects of board characteristics on earnings management in company listed on SBF 250 during the 2008-2012 period.

We find that there is significant negative relation at the 10% level between discretionary accruals and board size. This result failed to find any support of hypothesis H1 suggesting that large boards are more effective in monitoring a CEO's action. This result and is in contradiction to prior studies that have found a significant positive relationship between discretionary accruals and board size [1,6,10,27].

We do not find any statistically significant relation between board independence and absolute value of discretionary accruals. This non-significance can be explained that board independence does not seem to have a direct effect on earnings management. This result failed to find any support of H2. This result is consists to Pretty et al. [27] and Gulzar [10] and is an contradiction to prior studies that have found a significant negative relationship between this two variables [1,2].

We find a significant positive relation at the 10% level between CEO duality and discretionary accruals suggesting that the French companies do not separate the role between CEO and chairman of the board. This result suggests that by combining the role of CEO Chairman of the board helps in increasing earnings management because CEO may reduce the effectiveness of the board and may create a conflict between management and board that may reduce earnings management. Therefore this result support of H3. This result is consists to Gulzar [10] who found that CEO duality is positively related to earnings management and is an opposition to Beasley [21] who found that CEO duality is negatively related to earnings management.

We notice a significant positive relationship at 10% level between the board activity and the discretionary accruals suggesting that the greater number of meetings is more likely to increase the level of discretionary accruals. This result failed to find any support of H4. On the other hand, this result is consistent with that of Gulzar [10] who suggested that more board meetings help to increase the earnings management, and is an opposition to Supawadee et al. [3].

Among the control variables of our model, only the firm's performance is found to be positively associated with the earnings management at 1% level suggesting that the magnitude of the earnings management increases as the firm performance increases. This may be because the management has the incentives to avoid losses. Performance seems to be a motivation of the earnings management. This result is confirmed by Chalayer et al. [33] who found a significant positive relationship between the firm's performance and the discretionary accruals.

Apart from the firm's performance, we do not find any significant association between the earnings management and the firm's size, financial leverage and industry (High-technology Sector) (Table 10).

Conclusion

The main objective of this study is to investigate the link between the board characteristics and the earnings management. More precisely, we try to give an answer to the following question: do the board characteristics affect the earnings management? For this reason, we study the effect of the board characteristics including; the board size and independence, CEO's duality and the board activity on the earnings management which is measured using discretionary accruals and performance-matched discretionary accruals. In addition, four controlled variables have been integrated in this analysis: firm's size, financial leverage, firm's performance and industry. Our sample consists of 70 French companies during the span between 2008 and 2012. We will examine the firms listed on SBF 250. Moreover, in this study, the empirical methodology adopted to study the relationship between the board characteristics and the earnings management is founded on the linear regression model using Panel data.

This study concluded that the earnings management is negatively related to the board size suggesting a large board is more likely to decrease the level of the earnings management. The study further concluded that CEO duality is positively related to the earnings management suggesting that the CEO is the board chairman, the likelihood of the earnings management will increase because CEO's duality may reduce the effectiveness of the board and may create a conflict between the management and the board that may reduce the

earnings management. However, this study concluded that the earnings management is positively related to the board activity suggesting that the greater number of meetings is more likely to increase the use of discretionary accruals. However, we find no relation between the earnings management and the board independence.

Among the control variables, performance positively affects the earnings management. This implies that firms with strong performance are more likely to increase their earrings management because the management has incentives to avoid losses. However, other control variables do not seem to have a direct effect on the earnings management.

Overall, from the result of this study, we conclude that the earnings management takes place in French listed companies.

The contribution of this study may have limits that are primarily methodologically ordered:

- Limited samples compared to similar studies
- Omission of other governance variables

Future research studies could take various directions such as the inclusion of additional governance variables integrating all the control management systems. Similar studies should be carried out over a longer period of time and a larger number of companies, these are avenues of research that deserve to be explored.

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